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**FINAL REPORT OF THE SPECIAL
WATERWORKS COMMITTEE
FEBRUARY 5, 1906**

Ann Arbor Mich

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FINAL REPORT OF THE SPECIAL WATERWORKS COMMITTEE FEBRUARY 5, 1906

Ann Arbor, Michigan, Feb. 5, 1906.
To the Honorable, the Common Council
of the City of Ann Arbor.
Gentlemen:

Your Committee appointed by your honorable body, February 20, 1905, to investigate and report upon the water supply of the city, begs leave to submit the following:

There is no more important interest in a community than its water supply. This is especially applicable to Ann Arbor. This city is situated in a beautiful valley; its natural attractions are great; it has now 18,000 inhabitants; it has grown rapidly for fifteen years; this rate of growth still continues; it is a city of homes for a highly cultured people; it is well located for business, for health, for enjoyment, for culture; it is justly famous for its unsurpassed educational advantages; its property is valued at \$11,000,000, and is worth \$15,000,000; it already has many prosperous manufacturing industries; its greatest single interest is its University; this represents an investment in buildings of \$1,650,000, and in equipment of \$1,000,000; this brings every year within our gates more than 4,000 strangers from all corners of the earth; they bring and leave with us at least \$2,000,000 every year; the city is in a way a trustee of this property and the health and lives of those who come as students, or to obtain treatment in our hospitals. These

make Ann Arbor peculiarly exposed to the spread of communicable diseases, and the calamity from such would be felt almost all over the United States. From these considerations there is an extraordinary duty of vigilance incumbent upon all our public authorities to see to it that the people and their property receive no detriment, that our sanitary conditions, and the condition of our water supply be, and be kept, above suspicion and that the property and lives of those entrusted to their care, be adequately and vigilantly protected in every way that the highest knowledge and the best skill can devise. It is believed that some such considerations as these were in the minds of the Council when they placed upon this Committee the duty to investigate the water supply of the city. It has been with this feeling uppermost that the Committee has undertaken its work—not to accuse or condemn, nor to palliate or excuse—but to ascertain what the conditions pertaining to the water supply in this city really are, and to recommend such means as in its judgment will lead to their betterment.

Many of the questions have involved most difficult legal, engineering, sanitary and economic questions—many of which it has been possible to answer only approximately with the means at hand and the information that could be obtained. The conclusions herein are based upon the best information the

Committee was able to secure, and are subject to re-verification of the data obtained.

The general conclusions of the Committee follow, with the facts and reasons upon which they are based, together with recommendations for action by the Council.

I.

(The legal rights of the City and the inhabitants thereof, and the legal duties of the Water Company under its contract with the City, with the best methods of protecting the former and enforcing the latter.)

The City has the right:

(1) To an adequate supply of water for domestic, commercial, sanitary and fire purposes, including the supply of public buildings, the sprinkling of streets and the flushing of sewers.

(2) To a supply of wholesome water suitable for domestic purposes, free from dangerous contamination, drawn from sources not liable to dangerous contamination, and a degree of care used in collecting and distributing it, and in preserving its sanitary condition, commensurate with the calamity that would result from dangerous contamination.

(3) To have the water furnished continuously for ordinary purposes under the reservoir pressure called for in the contract, i. e., sufficient to throw six streams through 100 feet 2½-inch rubber lined hose, 1-inch nozzle, the distances stated in the contract.

(4) To have direct pressure at all times under like conditions to the extent named in the contract, whenever called for, or needed, for fire protection.

(5) To have the water furnished to the city at the rates named in the contract, including the flushing of sewers by automatic tanks properly adjusted, at the price stated in the contract.

(6) To have water furnished to the inhabitants, under the conditions named, at reasonable rates.

(7) To fix and enforce reasonable rates by the Common Council.

(8) To make and enforce reasonable regulations governing the use of water,

binding on the company and the inhabitants.

(9) To have such proper information as to cost of plant and cost of operation of the water works, as will enable the Common Council to fix reasonable rates.

(10) To purchase the works at an agreed price, or at a price fixed by a commission appointed by the Supreme Court upon application by the city. The decision of such a commission would be binding upon both parties.

The City has the following remedies:

If the contract has been substantially violated by the Company, or there is a refusal by it to perform all of its obligations, the City can bring action.

(1) To rescind the contract; or

(2) Maintain mandamus to compel its full and fair performance.

We believe the latter is the more appropriate remedy, under all the circumstances.

2.

(Whether or not, and if so to what extent and in what particulars, the company has heretofore violated, or is now violating, its duties to the City or its inhabitants.)

The Company has violated its duties in the following particulars:

(1) By failing in the past, and at present, to furnish an adequate quantity of water for both public and private purposes, and by interfering with the tanks used in properly flushing the sewers.

(2) In drawing water from unsafe sources, and collecting and distributing it in unsanitary ways.

(3) In failing to aerate the water as required by the contract.

(4) In failing, at various times, to furnish the reservoir pressure called for; in failing to enlarge the supply mains which bring water to the city, so as to make them adequate to meet the increased demands due to the necessary extension of the distribution and service pipes; and in absolutely refusing to furnish the direct pressure called for in case of fire, except when cleaning the reservoir,

3.

(The present, and all available, sources of supply of water to the city, together with the geological, sanitary and other qualities and conditions connected therewith.)

The present source of supply of water is mainly springs and wells, located at what are called: *Station No. 1*, up the river about one mile from the city; and *Station No. 2*, in the valley between Washington and Liberty streets.

a. The Present Supply.

At *Station No. 1*, water is drawn from:

(1) A spring supply along a creek on the opposite side of the river. This water is first collected in two or three wells about eight feet deep, located in very unsanitary situations. At present there seems to be no part of the supply drawn directly from the spring further up Allen Creek, on the Tower farm.

(2) Most of the water at this station is obtained from wells from 60 to 120 feet deep, part of which is collected in tile drain pipes laid a few feet under the surface of the ground in a lot that is at times used as pasture for a cow or horse.

(3) River connections exist at this station, and these are at times drawn upon.

An average supply of about 700,000 gallons daily is all that can be counted on from this station, outside of the river.

At *Station No. 2*, water is drawn from:

(1) Deep wells, 120 to 150 feet deep.

(2) Shallow wells 25 to 35 feet deep, situated in the bottom of a valley, on the steep side slopes of which are located several stables and many privies.

(3) A spring located further up the valley in the side of a small creek running through a meadow and pasture field over which the Company has no control. Some of this water is also collected through drain pipes situated a few feet below the surface of the bottom of the valley.

The deep well supply here will furnish about 700,000 gallons daily; the

shallow wells probably 300,000 gallons daily; and the spring supply is claimed to be 1,000,000 gallons daily, but the measurements made shortly before it was utilized showed less than 75,000 daily.

b. The Future Supply.

The Huron River is probably the only available adequate source of supply for the increasing population of the city. The minimum flow of the Huron, so far as we have been able to learn from such gaugings as have been made, is about 400,000 gallons per minute; the maximum supply necessary for all purposes of the city of Ann Arbor will not exceed 10,000 gallons per minute for the next twenty years, and would not much exceed 2 per cent of the total available supply from this source. The quality of the water is such that it would require filtering for use. As to the right of the city to use water from the Huron River there may be some doubt, depending upon the extent to which mill rights have already been acquired by private parties. In the absence of such mill rights, the city is probably a riparian owner, and can take water from the river for the supply of all its inhabitants. This right, however, seems not to include the right to draw directly from the mill pond of anyone who has mill rights in the river. If there is any part of the river within the limits of the city, not already subject to prior mill rights, the city should take immediate steps to secure and protect the same.

The geological, sanitary and chemical condition of the supply of water is fully dealt with in Professor Russell's report, heretofore submitted to the Council.

4.

(The power and authority of the city to construct water works of its own, and the best method of proceeding therein.)

The city has ample power to construct water works of its own, but cannot do so, so long as the present contract granting exclusive privileges to the Water Company, continues in effect. If it was rescinded the city would have the right and power to construct water works, but

could not go more than three miles beyond the city limits in doing so, and the works could not cost over \$1,100,000. The rescission of the contract with the Water Company would not terminate the Company's right to use the streets for furnishing water to the inhabitants, if it chose to continue in business.

5.

(The probable cost of constructing new and up-to-date works adequate to the satisfactory present and future supply of the city and its inhabitants, and for adequate fire protection.)

The population of the city has increased rapidly—for the decade 1890-1900 the rate has been about 4 per cent per annum. This rate has continued up to the present time. The population of the city can be safely estimated for 1905, at 17,400; for 1915, at over 25,000; and for 1925, at over 36,000. The average consumption of water is, and will continue to be, 100 gallons daily per capita. At these figures, the average quantity of water required daily is, now 1,750,000 gallons; in 1915, it will be over 2,500,000; and in 1925, it will be over 3,600,000. During the summer months, the requirement now is a little over 2,000,000 gallons daily; in 1915, it will be over 3,000,000; and in 1925, it will be nearly 4,500,000.

For ordinary purposes, the maximum rate of consumption during the times of largest consumption, daily and hourly, is now about 2,700 gallons per minute; in 1915, this will be 4,000; and in 1925, 5,600.

For adequate fire protection, there should be available, over and above the rate of ordinary supply above mentioned, 3,000 gallons per minute; in 1915, 3,500; and in 1925, 4,250. If a six-hour fire should happen at the time of maximum ordinary consumption, the total daily supply for ordinary purposes and six hours' fire, can now easily reach 3,600,000 gallons; in 1915, it should be 5,000,000; and in 1925, it should be 7,000,000.

For an adequate fire stream, for inside purposes, a continuous nozzle pressure of 25 pounds is required; and for first class outside streams in business

parts of a town, 75 pounds nozzle pressure is often required. The friction in hose is such that for the ordinary lengths of hose usually used, 100 to 300 feet, 60 pounds hydrant pressure is necessary for inside hose streams, and from 100 to 175 pounds for outside streams in business districts. For residence districts a hydrant pressure of 60 pounds is considered sufficient for outside streams, if the hose does not exceed 300 feet. With 175 pounds hydrant pressure, 2-inch nozzle, with 400 feet of 3-inch rubber lined hose, 1,000 gallons per minute can be poured upon a fire with great force. It is usual, however, to regard more than 130 pounds hydrant pressure as beyond the limit of safety unless the pipes are extra heavy.

The elevations of the city are such that if a static pressure of 100 pounds was fixed for Main street (830 foot level), where there should be such a pressure for fire purposes, the extremes would not exceed 130 pounds in the lowest parts of the city, and not be less than 60 pounds on the highest elevations.

The foregoing pressure requirements are flowing pressures—that is, must be kept up while the water is flowing at the rates necessary. The friction in pipes varies with the length and rate of flow; and mains have to be used of a size large enough, not only to meet the existing, but also the future, demands.

At present, the population of the city is distributed in elevation approximately as follows: 807-830 feet, 5,000; 830-853 feet, 3,000; 853-876, 8,000; 876-899, 2,000. In 1925 there will probably be 15,000 people between the 899-922 foot levels, since three-fourths of the growth must necessarily be upon the high elevations. These differences in elevations correspond to 10 pounds static pressure.

A hydrant pressure of 60 pounds required 139 feet head. To secure this on the high elevations of the city would require an elevation of 1061 feet, or 64 feet above the reservoir hill. By building a water tower 100 feet high on the reservoir hill, a head of 36 feet could be obtained for overcoming the friction in the distribution pipes; and with such a

margin a distribution system sufficient for domestic and fire purposes for the present, and for twenty years in the future, could be designed.

Such a plant would require, at present, a filter for 3,000,000 gallons daily from the river; a reservoir of the present capacity; a standpipe or water tower 100 feet high; pipe, 24-inch, 8,800 feet; 20-inch, 4,500 feet; 14-inch, 6,000 feet; 12-inch, 5,000 feet; 10-inch, 25,500 feet; 8-inch, 17,000 feet; 6-inch, 275,000 feet; 400 hydrants; two first class 300 horsepower steam turbine pumps, with all appurtenances; the requisite land and buildings; and would cost approximately \$600,000. Such a plant would be fully adequate for all present purposes and could be easily added to, to meet all demands to 1925 at perhaps an addition of about \$15,000 per year for extensions. The foregoing estimates are subject to verification of the data upon which they are based, by actual survey and measurements.

6.

(The probable expense of operating the same.)

The probable expense of operating and maintaining such an up-to-date works, with careful supervision, would be about \$16,000 per year at present—\$25 per million gallons pumped. This is a liberal estimate, and might be, with strict economy, reduced to \$13,000. In 1896, the operating expenses per million gallons pumped, by eight private companies in Michigan, were \$14.17; in twelve municipal plants in the state for the same year the operating expenses were \$14.68 per million gallons; in 1904, in eight municipal plants in Michigan, the operating expenses were \$16.85 per million gallons pumped; and the average operating expenses for the three years, 1893, 1896 and 1900, of the Ann Arbor Water Company, did not exceed \$22.40 per million gallons pumped. It was clearly shown by the Government investigation in 1899 that the larger the amount pumped, the less were the operating expenses per million gallons. In 1915, therefore, the operating expenses would probably be about \$20,000; and in

1925, \$26,000. These figures, of course, do not include expense of extensions, nor interest on the investment, nor anything for a sinking fund.

7.

(The probable rates at which water could then be furnished to the city and its inhabitants.)

This is considered below under "Rates."

8.

(The fair and reasonable value of the plant of the present Water Co.)

According to the best information available, the fair and reasonable value of the Water Company's plant to the city, in case of purchase, does not exceed \$285,000, including the exclusive franchise yet held by the Company for furnishing water to the city. This franchise, in case it has not been forfeited, may fairly be valued at about \$50,000; and although this exclusive franchise was given to the Company, in case it has not been forfeited, it is valuable property of which the Company cannot be divested. In case the city wished to purchase, it could fairly afford to pay this sum, \$50,000, for it, rather than enter into competition with the Water Company. The plant proper of the Company could not be utilized by the city in such a way as to make it, in its present condition, worth more than about \$235,000 to the city. This is based upon the supposition that the distribution system is in the fair condition it is asserted to be. There has been no opportunity nor facility to investigate the actual condition of the machinery, nor to ascertain whether the pipes are incrustated, leaky, rusted badly, or rotten from electrolysis. The actual amount and condition of the physical property, and the location of the source of adequate supply, are, of course, basic elements in the real value of the Company's property.

The mean valuation, according to Riggs and Sherman, after correction, is \$305,754. This, however, was simply a valuation of the plant as it is, without regard to its fitness for the uses of the city.

If the direct pressure, which we believe the contract calls for, could be furnished in case of fire, most of the places on the larger mains, and where there is a good gridiron arrangement of 6-inch pipes, with close hydrant spacing, and at levels not above 870 feet, would have what would be called fair fire protection. For several years, the city has passed much beyond this, and now a large per cent of the population lives above this level, and the growth of future years will be almost entirely above this level. These places cannot have fair fire protection from the water works without material additions, and, as the city grows more, and more water is required, the fire protection will diminish in all parts of the city.

9.

(The probable cost of making it adequate to the present and future needs of the city and its inhabitants.)

To make such changes and additions to the plant of the Water Company as would make it adequate for the present supply of the city and its inhabitants for all purposes—public, domestic, commercial and fire—such as the city should have; and if all the property of the Company could be utilized, would require \$300,000, allowing for parts that could not be used \$350,000. With an expenditure of such sum, the plant could be made first class in every particular, and capable of being developed as rapidly as the increase of population would require for twenty or thirty years or more.

10.

(What would be reasonable rates to be charged by such Company, should the works be so perfected.)

This is considered below under "Rates."

11.

(The price at which such works could be purchased.)

The only price which has been offered by the Company to the city is \$450,000. This was the price made in 1901. The same offer was made again last year, in May. The Company has, it is understood, \$87,500 of capital stock outstand-

ing, and \$276,000 of 5 per cent bonds outstanding. These together make \$363,000, and it is probable that the plant could be bought for this sum, though no such offer has been made.

RATES.

(Questions 7 and 10.)

The city and the inhabitants are entitled to have water furnished at *reasonable* rates under the contract. They must be reasonable both to the consumer and to the company if furnished by a company—and according to the decisions the consumer's interest is paramount, provided the rate is not so low as to deprive the company of its property without fair compensation.

As to the consumer, a rate, to be reasonable, must not be more than it would cost him to supply himself, with substantially the same service. With wind-mill pump one can now supply from a well a family of ten persons, and have water for sprinkling and garden purposes, as fully and satisfactory as the Water Company does or can, for less than \$10 per year—and own his own plant. With a gasoline engine the cost for like service would not exceed \$12 per year.

In general, the company is entitled to a fair income upon the money actually, economically, honestly and intelligently invested, and in fact used by it, and with the works economically operated, without allowance for depreciation, extensions, or sinking funds. The rate of interest for which it can borrow money on a mortgage of its plant is a fair test of the income to which it is entitled on the money so invested. This is 5 per cent at the present time, in the case of the Ann Arbor Water Company. The amount of money invested and now actually used by the Company does not exceed \$300,000. The city could borrow money at 4 per cent, possibly $3\frac{1}{2}$ per cent. If the city borrowed money, and wished to repay it in 30 years on the serial bond plan, the amounts to be raised annually for interest and principal would be as follows:

Annual Payments.

	At 3½%	At 4%
\$ 50,000.....	\$ 2,718.57.....	\$ 2,891.50
300,000.....	16,311.39.....	17,349.03
400,000.....	21,748.52.....	23,132.04
500,000.....	27,185.65.....	28,915.05
600,000.....	32,622.78.....	34,698.06

If the repayment was to be made by the establishment of a sinking fund instead, it is safe to say that the sums set aside annually could not be certainly invested at a rate of more than 3 per cent. The annual sums, in addition to the interest to be set aside, at this rate, to repay the principal in 30 years would be:

	Int. at 4%	Sinking Fund	Total
For \$ 50,000	\$ 2,000	\$ 1,050.96	\$ 3,050.96
300,000	12,000	6,305.79	18,305.79
400,000	16,000	8,407.72	24,407.72
500,000	20,000	10,509.65	30,509.65
600,000	24,000	12,611.58	36,611.58

In a city, such as Ann Arbor, the cost of constructing water works adequate for full fire protection for all parts of the city, is approximately twice, and the operating expenses and repairs one half more, than what they would be for domestic and business purposes alone. This being the case, it would be reasonable for the whole public who have the same fire protection, if adequate, to pay one-half of the interest on the investment and one-third of the operating expenses—although the actual amount of water used for all public purposes, including is share of waste, usually does not exceed 10 per cent of the total amount.

Further, since the whole investment is made for the purpose of supplying water to all the inhabitants, and since there is a duty to supply all who call for service, and this investment is made for the benefit of all whether they take water or not, it seems fair that all should pay, by tax, the other half of the interest on the investment, and not those who take water. And since all would receive the benefit of the payment of the whole cost, the sinking fund, or serial bond payments, should be borne by all. If this is correct, then consumers should be charged only with two-thirds of the op-

erating expenses—the sum it costs to furnish them with water.

Extensions and betterments should be charged to investment, upon which interest is to be paid.

While the foregoing principles of rate adjustment between the public and the consumers are believed to be correct, they are not in accordance with the usual practice. The division between the public and the consumers, where any fair division is attempted, is upon the basis of the relative cost of the investment for public and private service, and of operating expenses due to these services respectively. These, as above stated, are one-half of investment for each, and one-third of operating expenses for public service.

It is generally found that in cities similar to Ann Arbor, 50 per cent of the water used (allowing for leakage) is for domestic purposes, 40 per cent for commercial purposes, and 10 per cent for public purposes. Dwellings, then, should pay about 56 per cent of the sum to be raised by rates, and business houses 44 per cent.

In Ann Arbor there are about 3600 dwellings, a little over half of which (say 1850) take water at present, and of these approximately 80 are 5-rooms; 120, 6-rooms; 240, 7-rooms—the balance, 1310, being over 8-rooms—most of which have a bathroom and a closet, and a majority of the owners of which sprinkle their lots. About 100 buildings are built each year.

There are in the city 9 bakeries; 4 banks; 18 barbers; 4 billiard halls; 13 boarding houses; 2 brewers; 9 blacksmiths; 17 dentists; 10 druggists; 3 florists; 36 fraternities; 41 grocers; 8 hotels; 3 private hospitals; 14 laundries; 8 livery stables; 35 manufacturers; 7 photographers; 5 printers; 8 restaurants; 37 saloons; and 57 stores of various kinds.

Applying the principles above set forth to the conditions in Ann Arbor, upon a basis of 4 per cent serial bond plan, for works that cost the following sums, the adjustment would be as follows:

	\$300,000	\$600,000
Serial bond—30 years..	17,349	34,698
Operating exp., repairs, etc.	16,000	16,000
Total to be raised...	33,349	50,698
Public, 1-2 of bond....	8,675	17,349
1-3 operating exp....	5,333	5,333
Total by public....	14,008	22,682
Private, 1-2 bond.....	8,675	17,349
2-3 operating exp....	10,667	10,667
Total, private.....	19,342	28,006
Average rate per 1,000 gals.	3c	4½c
Commercial purposes 44%	\$ 8,510	\$ 12,322
Dwellings (1800) 56%.	10,382	15,784
Dwellings, average.....	6	9
<i>Approximate Amounts Now Paid.</i>		
City	\$ 7,000	
Commercial and Univ...	11,000	\$18,000
Dwellings, etc.....	21,000	
Total	\$39,000	

In other words, if the city could acquire the present plant for what has actually been invested in it, and still used in supplying the city with water, it could pay for it in 30 years, and lower the rates nearly \$6,000 (almost 20 per cent), or cut down the sum paid by the city for hydrant rental to about \$1,000, leaving the rates as they now are. For such fire service as the city now has from the water works, it would not be fair to charge half of the investment, nor one-third of the operating expenses—for the reservoir pressure alone, the machinery and pipes are scarcely more than such as are necessary for domestic service—and \$5,000 per year would be a large allowance for such service.

On the other hand, if the city built works of its own, or could acquire the present plant at its fair value, and make it fully adequate for all the purposes of a city of this size, if the public should raise by taxation \$18,000 per year for 30 years, and the rates paid remain the same as now, the entire plant could be

paid for in 30 years—even though it cost \$600,000; and in that case the city would have one of the best plants in the country. If the city could operate as cheaply as other cities in the state having municipal plants, and could issue its bonds for 3 1-2 per cent, on the serial plan, and if the city raised as now \$7,000 by taxation, the rates could be reduced somewhat below present rates and still the \$600,000 plant could be paid for in 30 years.

The rates charged by the Water Company for the services rendered are unreasonably high. Upon a basis of \$300,000 invested, the interest would be at 5 per cent, \$15,000; operating expenses, repairs and taxes are approximately \$16,000—making \$31,000 in all. The gross earnings are approximately, from the city, \$7,000; commercial purposes and University of Michigan, \$11,000; fraternities and boarding houses, \$1,600; 1,800 dwellings, \$18,000; new taps, \$1,000; total, \$39,000—leaving \$8,000 for other matters. The \$23,000 of net earnings, after paying 5 per cent interest on \$276,000 bonds—\$13,800—leave \$9,200 for the stockholders, or over 10 per cent. It is probable that only part of this is paid in dividends, and part used for extensions. If such is the case, although they have been paid for by the patrons of the Company, they are undoubtedly charged to the investment account, upon which the Company claims the right to draw interest, and charge rates sufficiently high to do so. How much of the investment upon which interest is now claimed has been derived from earnings due to excessive rates it is impossible to say without access to the Company's books. This is refused. A reduction of ten per cent in the rates now paid, if we are correct in our premises, could be made and the Company would then earn as much, or more than, it is justly entitled to.

MUNICIPAL OWNERSHIP.

Our commission did not specifically require us to report upon the subject of public ownership of the water works. We, however, deem it proper to make the following statements:

"One of the most remarkable movements in the municipal history of the past century is the rapid growth of the public ownership of public utilities." Turnpikes, streets, bridges and canals have nearly all become public. In the United States, water works, gas light and electric light plants, telephones and street car lines have largely passed, or are likely soon to pass, into public control. In Europe, railroads, street car lines, telegraphs, telephones, in addition to water, gas and light plants, together with very many other matters widely affecting the public welfare, have come under municipal or state control. In 1897 it was said that there were at the beginning of the century practically no water works in the United States or Canada, whereas in 1896 there were over 3,300, more than 2,700 built since 1880, and 1,400 since 1890. A similar growth has probably taken place since.

In 1903, of the cities of over 30,000 population having water works, 70 per cent were publicly owned and operated; and of the cities under 30,000 having water works, a fraction over 50 per cent were municipal plants. Over 75 per cent of the water works in Massachusetts are public; in Illinois, 78 per cent; in Michigan, 81 per cent; Iowa, 82; Minnesota, 87; and in Nebraska, 88.

Down to 1896 there had been 200 changes from private to public ownership, and only 20 the other way; and in the six years from 1890 to 1896, there were over 100 changes from private to public, and only six or seven from public to private ownership. Since this date the changes have been substantially all from private to public ownership of water works. Many of the states, notably Ohio, Illinois, Missouri, Kansas and California, have enacted laws looking to, or authorizing, the complete municipalization of nearly every public utility operated within any city in these states. All over the world at the present time there is a stronger tendency than ever before toward public ownership of public utilities; this has been so constant and persistent, and has grown with fuller experience, to such an extent as

to make it certain that it is the result, not of a freak or fancy, but of a settled conviction in its efficiency to remedy the evils arising from private monopoly, as well as secure the benefits of intelligent co-operation.

The fundamental motive of private monopoly is not primarily *public service*, but *private gain*—dividends for a few instead of service for all; whereas the reverse is true in the case of complete public ownership.

The evils that attend private monopoly are patent nearly everywhere. They have been enumerated, with much truth, to be excessive charges, unreasonable profits, watered stock, false accounting, doctored reports, poor service, unjust discrimination, corruption, defiance of law, impudent treatment of those who are obliged to rely upon their service, and usually an unholy alliance, in one way or another, with such powers of the government as are in a position, or are willing, to serve them at the expense of the public welfare.

Objections to municipal ownership exist—danger from the spoils system, paternalism, socialism, closing the door to business opportunity, extravagant expenditures, inefficient service, uneconomical operation, are usually enumerated. Some of these have, in practice, proved more fancied than real—and only a few, if any, are *inherent*, due not to the plan, but to the fact that the government itself is owned and run by a gang rather than by the public body itself. The remedy for such a condition is to turn the rascals out; and their opportunity and motive for graft and corruption are as great or greater under private monopoly ownership of the things which all are obliged to use as they would be under public ownership.

There are positive and compensating advantages of *public ownership* of the government itself and of public utilities, possible in better service, lower rates, economy of production, co-ordination of industries, extension of facilities, increase of business, no discrimination, true accounts and full accountability.

The conditions, however, of such re-

sults are: full legal power and authority in a municipality as extensive as if operated by a private corporation; power of eminent domain; extensive police powers; charges according to cost of service rendered, including interest, insurance, taxes relinquished, taxes to be paid, depreciation, sinking fund; full and accurate accounts subject to audit at any time; the creation of a thoroughly competent Board of Control, with large discretionary powers in determining questions of engineering, mechanical and operating details, subject to full report and strict accountability; and, above all, if the people are to own and operate their public service institutions, *they must own and operate the government itself*, there must be instituted the merit system of civil service, and for many cases the initiative and referendum must be open and prompt and efficient action,—the former to prevent abuse of official and administrative power, and the latter to prevent the abuse of legislative power.

There would seem to be no more suitable place in the country than in Ann Arbor, where it would be possible, with a proper civic interest, to make public ownership possible and successful.

In the case of water works the results of municipal ownership can hardly admit of doubt. In 1890 a careful study showed that "taking the United States as a whole, the investment per family is about the same in public as in private plants, yet the total rentals averaged 43 per cent more per family in private than in public plants."

A calculation based upon the figures given in the Water Works Manual for 1897, showed ordinary family rates in Massachusetts to be \$7.50 for private, and \$5.75 for public plants; in Indiana, \$9.75 for private, and \$4.66 for public; in Illinois, \$8 for private, and \$5.33 for public; in Texas, \$15.12 for private, and \$9.25 for public; in Washington, \$17 for private, and \$10 for public.

So also under private ownership, the rates were 410 in Syracuse, New York; \$8 in Auburn; and \$10 in Randolph; whereas under public ownership afterward acquired, the rates were respec-

tively \$5, 6, and \$4, in the same places. Many similar results could be given—not for water works alone, but for gas and electric light plants as well.

The fullest study of the subject that has yet been made was by the Department of Labor in 1899; the results, here, almost without exception, were in favor of municipal ownership, and can be summed up so far as water works are concerned, as follows: Cost per 1,000,000 gallons, excluding depreciation, taxes and interest,—private, \$41.25—public, \$37.67; cost, including depreciation, taxes and interest,—private, \$123.86—public, \$118.54; average price per million gallons sold—private, \$96.20; public (often not including anything received for public supply), \$72.70.

A recent bulletin of the Census Department relating to public ownership of lighting plants, for both gas and electricity, shows results favorable to public ownership.

If water works were to be constructed anew for the city, the Committee would favor municipal ownership. If the present works could be purchased at approximately the price at which they could be utilized by the city, we would be inclined to recommend that such be done. We, however, do not deem it wise to pay anything like the price asked by the Company. In any event, before the city purchases, we believe the company should give, or the city should obtain and verify, substantially all the information requested in our unanswered letter to the Company, a copy of which is hereto annexed (marked Exhibit No. 5), of April, 1905; also the detailed information called for by Professor Davis' communication to this Committee, of October 20, 1905, a copy of which communication is hereto annexed (marked Exhibit No. 7); and further that the entire plant of the company be put under the general direction of a competent engineer to be designated by the Common Council, for operating and testing for such period during the summer as may be necessary, to determine its actual condition, capacity and performance; that these answers and the results of

such tests should be made public; and after the public are in possession of the information, the question of purchase should be submitted to the voters of the city. And further, that it should be made clear to the voters that the city and the school district (which are practically one) are already bonded (including sewer and paving bonds) for approximately \$300,000; that part of these bonds run for 30 years with an interest charge of over \$12,000, and during a part of this time require a principal payment of \$15,000 annually; that the purchase would probably add another \$300,000; and to make the plant adequate to the needs of the city would probably entail an additional expense of nearly \$300,000 more. Before such purchase was determined upon, and after the facts before mentioned were obtained, in the judgment of the Committee, a competent engineer should be employed to make proper plans and estimates for utilizing the plant if purchased.

While, perhaps, the Common Council has power to ask for the appointment of commissioners by the Supreme Court to value the property, under the provisions of the contract, which would bind the city, without submitting the question to the voters, we believe it would be unwise to do so, and to do so at all until the rights of the city and the duties of the company under the contract, are fully determined by a court, or the company agrees to submit these, and the question of their full performance to such commissioners, to be taken into consideration in valuing the property.

RECOMMENDATIONS.

We therefore recommend:

(1) That a formal request be made by the Common Council to the Ann Arbor Water Company to furnish direct pressure when called for by the Chief of the Fire Department; to disconnect their pipes from the Tower farm wells, the river, and the wells less than 50 feet deep at Station No. 2; to replace all drain tile for collecting water by iron pipe with properly leaded joints; to take such steps as will certainly pre-

vent contamination of the water from the creek on the White farm; to have all man-holes and other similar openings connecting with the pipes of the collecting systems at each of the pumping stations securely closed; to have a suitable fence constructed about the collecting or pumping reservoir at the river pumping station (Station No. 1) so as to prevent persons from gaining immediate access to the said reservoir; and all other reasonable and proper precautions taken to prevent accidental or malicious contamination of the water supply.

(2) In case the Company fails promptly to comply with the foregoing request, we then renew our recommendation of March 22, 1905, that the City Attorney be directed immediately to bring suit or suits as he and such counsel as may be employed to aid him shall deem proper, to preserve, protect and enforce the city's rights. Also that the Fire Chief be specifically authorized to call for direct pressure for fire purposes, whenever in his judgment the same is needed.

(3) That the City Attorney be directed to ascertain, and to do whatever is necessary, to protect the rights of the City as a riparian owner to use the water of the Huron River for a water supply for the city.

(4) That the request made by Israel C. Russell, in his report printed in the Council Proceedings for Nov. 13, 1905, for an allotment of \$40.00, to be used in having two chemical analyses of the water of the Huron River made, be granted.

(5) That a competent geologist and hydraulic engineer be employed to find the best available, permanent and adequate source, or sources, of supply of water, and to test the same, whether the water eventually be taken from the Huron River, or come from other sources; and that no steps be taken to acquire the present water works without first finding such a source, or sources, of supply.

(6) That, after a source of adequate and permanent supply is found, a com-

petent engineer be employed by the city to make the necessary surveys, with plans and specifications for using the same for the city, and constructing such works as shall be fully adequate, according to the best modern practice, for all the purposes of the city at present, and for twenty years to come, with estimates of the cost thereof; also to determine with care what part, if any, of the plant of the present company can be utilized as a part of such plan.

(7) That the present ordinance fixing water rates be repealed, and the rates indicated in a proposed ordinance attached hereto (marked Exhibit No. 11) be fixed by an ordinance as the proper rates to be charged by the Ann Arbor Water Company.

(8) That an ordinance, similar to the one attached hereto (marked Exhibit No. 13), be passed and enforced, providing for such annual reports to be made by the Ann Arbor Water Company to the Common Council, as will enable the Council to fix fair and reasonable rates.

(9) That an ordinance, similar to the one attached hereto (marked Exhibit No. 12), be passed and enforced, providing for the creation of a tribunal having power to investigate, report and advise upon, all controversies and complaints between the Ann Arbor Water Company and the inhabitants, relative to the services rendered, or to be rendered, by the said Ann Arbor Water Company.

(10) That Section 17 of the Ordinance of June 6, 1894, be amended by striking out in the fifth and sixth lines of the section, as printed in the "Charter and Ordinances of the City of Ann Arbor" (1903), page 223, the words: "or the Ann Arbor Water Company," thereby making it a misdemeanor, punishable by a fine and imprisonment, for anyone except the authorized city officers to tamper with or change the adjustment or operation of the flushing tanks.

(11) That the Ordinance (Section 16 of the Ordinance of June 6, 1894, printed page 222, "Charter and Ordin-

ances of the City of Ann Arbor") providing for the connection of dwellings, etc., with sewers, whenever practicable —be strictly enforced.

EXHIBITS.

Reference is made to the following papers connected with this investigation:

(1) Resolution of the Common Council appointing the Committee (printed Council Proceedings, Feb. 20, 1905, page 168); marked Exhibit No. 1.

(2) Collection of proceedings of Common Council relative to water works matters, from 1885 to June 1, 1905; marked Exhibit No. 2.

(3) Testimony of Mr. Fred Siple, Mr. Walter Mack, Mr. E. W. Groves, Mr. Moses Seabolt, Mr. George R. Apfel, Mr. Sid Millard; statement of Mr. Lawrence; report of Professor Davis; testimony of Mr. Leverett; statement of Colonel Dean; report of Professor Bogle; and subsequent statements of Mr. Lawrence; marked Exhibit No. 3— a, b, c, d, e, f, g, h, i, j, k, l.

(4) Communication and recommendation of Committee relative to the appointment of an attorney to bring suit, and to an enabling act (printed Council Proceedings, Apr. 18, 1905, page 3); marked Exhibit No. 4.

(5) Letter of the Committee to the Water Company, April, 1905, asking for certain information; marked Exhibit No. 5.

(6) Report of Professor Davis (printed Council Proceedings, June 5, 1905, page 37); marked Exhibit No. 6.

(7) Letter of Professor Davis as to information necessary to determine the condition and value of the distribution system of the water works plant; marked Exhibit No. 7.

(8) Report and supplemental report of Professor Russell as to the water supply (printed Council Proceedings, Nov. 13 1905, page 153); marked Exhibit No. 8.

(9) Second supplemental report of Professor Russell, made to the Committee, Jan. 23, 1906; marked Exhibit No. 9. See Exhibit No. 16, page 44.

(10) Copy of letter to the Water

Company, Jan. 27, 1906, asking for information necessary for fixing rates; marked Exhibit No. 10.

(11) Proposed ordinance fixing rates to be charged by the Water Company; marked Exhibit No. 11.

(12) Proposed ordinance establishing a tribunal to hear complaints in regard to water service; marked Exhibit No. 12.

(13) Proposed ordinance prescribing reports to be presented by the Ann Arbor Water Company; marked Exhibit No. 13.

(14) Section 17 of the Ordinance of June 6, 1894, as amended in accordance with Recommendation No. (10); marked Exhibit No. 14.

(15) Section 16 of the Ordinance of June 6, 1894, recommended to be strictly enforced (see Recommendation No. (11); marked Exhibit No. 15.

(16) Minutes of the meetings of the Committee from Feb. 24, 1905, the date of the first meeting, up to and including the meeting held Jan. 30, 1906; marked Exhibit No. 16.

Respectfully submitted,
EMMETT COON, Chmn.,
GEORGE H. FISCHER,
ISRAEL C. RUSSELL,
R. S. COPELAND,
HENRY S. DEAN,
I. L. SHERK,
B. FRANK OHLINGER,
H. L. WILGUS,
J. B. DAVIS,
C. G. DARLING,
Committee.

EXHIBIT NO. 7.

Final Report Special Water Works Committee, Feb. 5, 1906.

Ann Arbor, Michigan, Oct. 20, 1905.
The Special Water Works Committee of the Common Council of the City of Ann Arbor.

Gentlemen:

Whereas my efforts to secure information regarding the construction and condition of the distribution system of the water works at Ann Arbor, Michigan, have so far proved fruitless, I recommend that the Special Water Works Committee of the Common Council of

said City request the said Common Council to furnish said Committee with the information indicated by the accompanying schedule of memoranda.

Respectfully,

Citizen Member of Committee.

Ann Arbor Water Works Distribution System.

To determine what is the present construction and condition of the distribution system of the water works at Ann Arbor, Michigan, information is needed regarding the matters and things indicated in the following memoranda:

Levels.

Referred to mean sea level, by connection with U. S. Geological Survey bench marks.

Lowest points in system.

Suctions.

Force mains.

Highest points in system.

Where water is now delivered.

Within corporate limits.

At reservoir.

Top of bank.

Bottom of reservoir.

Discharge outlet.

Usual water level.

Ground at buildings requiring fire streams.

Elsewhere.

At all street intersections where pipe is now laid.

At all gates.

Ground.

Top of casing beside valve stem.

Reservoir.

Sizes.

Dimensions at top of basin.

Dimensions at bottom of basin.

Depth, from levels.

Locations.

Of inlet.

Of outlet.

Pipes.

Locations.

Of all the various kinds and sizes of the main pipes, and the amounts of each.

Sizes.

Outside diameters.

Inside diameters,

At pumping stations.
 Within the pumping stations.
 In the vicinity of the pumping stations.
 At the reservoir.
 Suctions.
 To river.
 To wells.
 To basins.
 Pump connections.
 Suctions.
 Deliveries.
 Force mains.
 Distributing mains.
 Elsewhere.
 Condition.
 Exterior.
 Interior.
 Joints.
 Leaks.
 Weights.
 Of all sizes, from records of Water Company.

Dates.
 When all sizes were laid, and extensions made, as shown by books of Water Company.

Specials.

Same data as for pipes—see "Pipes"—as far as it applies.

Sizes.
 Of all outlets not in use, and direction in which they look.

Gates.

Sizes.
 Locations.
 Condition.
 Open.
 Closed.
 Partly closed.
 As to the ease of operation.
 Amount of possible opening.

Gate boxes.
 Description of.
 Condition.
 Accessibility.
 How to be found, with data for finding.

Hydrants.

Locations.
 Of each one, with kind of hydrant.
 Outlets.
 Number and sizes of all outlets.
 Positions on hydrant posts.

Kinds.
 Number of each kind.
 Devices for opening and closing.
 Number of turns of wrench to fully open.
 Dates of setting each one.
 Sizes.
 Of post.
 Outside.
 Inside.
 Valve, or gate, stems.
 Of inlet.
 Setting.
 Backing up.
 Connection to leader.
 Approximate length of leader.
 Condition.
 As to setting—see "Setting."
 As to depth of burial of leader.
 As to accessibility.
 In summer.
 In winter.
 As to ease of operation.
 As to convenience of attaching and serving hose.
 As to whether hydrant can be fully opened, or not.
 As to drainage.

Services.

Locations.
 Approximate—of all service pipes.
 Sizes of taps.
 Number of taps.
 Kind of service.
 Domestic.
 Laundry.
 Manufacturing.
 Elevators.
 Power.
 Others.
 Corporation boxes.
 Locations—approximate.
 Number.
 Yard hydrants.
 Number in each block.
 Sizes of outlet connections.

EXHIBIT NO. II.

Final Report Special Water Works Committee, Feb. 5, 1906.

An Ordinance to Determine, Define and Fix the Rates to be Charged the Inhabitants of the City of Ann Arbor, for Domestic and Other Uses, by the Ann Arbor Water Company; and to

Repeal an Ordinance Entitled: "An Ordinance to Determine, Define and Fix the Rates to be Charged the Inhabitants of the City of Ann Arbor, by the Ann Arbor Water Company, for Water for Domestic Purposes and to Repeal an Ordinance Entitled: 'An Ordinance to Determine, Define and Fix the Rates to be Charged the Inhabitants of the City of Ann Arbor for Water for Domestic and Other Uses, by the Ann Arbor Water Company,' Passed December 16, 1901, and Approved December 20, 1901," —Passed March 10, 1902, and Approved March 11, 1902.

Preamble.

Whereas, the Ann Arbor Water Company has contracted and agreed to furnish and supply the inhabitants of the City of Ann Arbor water for domestic purposes at reasonable rates; and

Whereas, in the opinion of the Common Council, the rates now and heretofore charged the said inhabitants are still unreasonably high, therefore

The Common Council of the City of Ann Arbor Ordain:

Section 1. That the rates to be charged the inhabitants of the City of Ann Arbor for water for domestic use by the Ann Arbor Water Company shall not exceed the following maximum rates annually:

Dwelling House Rates.

Kitchen use for one family occupying not exceeding four rooms..	\$2 50
For each additional room.....	50
For each regular boarder.....	25
For each bath tub, with six persons in family	2 00
For each additional person.....	25
For each additional bath tub.....	1 00
For each water-closet, self-closing, and wash-bowl	2 50
For each additional water-closet, self-closing	1 00
For each additional wash-bowl...	50

For hydraulic pump, operated by city water, the Ann Arbor Water Company may charge schedule rates, herein fixed, for the fixtures served by such pump.

For hydrant in yard, where no domestic rates are paid and water is used for domestic purposes, three dollars in

addition to the rates hereinafter fixed for lawn sprinkling.

Section 2. Any water consumer may place a meter in his premises for measuring water used for any purpose, subject to the inspection of the Water Company, or an officer to be designated by the Mayor of the City for that purpose; such meter to be kept in good condition and repair at the expense of the owner or user, and the Water Company shall not be required to furnish water through a defective or imperfect meter, but in case of the refusal or neglect of any water consumer to keep his meter in repair, may charge for its service, the schedule rates herein provided.

Meter Rates.

For water measured by meter, the Water Company may charge and collect the following maximum rates:

For a daily consumption of less than 1,000 gals.	20c per M Gals.
For a daily consumption of 1,000 to 3,000 gals...	15c " " "
For a daily consumption of over 3,000 gallons (provided that the minimum charge for water measured by meter shall be \$5 per annum).	10c " " "

Section 3. For sprinkling purposes the Ann Arbor Water Company may charge the sum of four dollars per annum.

The sprinkling season shall extend from April 1st to October 31st of each year, and all persons paying sprinkling rates shall be entitled to the use of one stream of water through a one-fourth inch nozzle, or other fixtures discharging an equal quantity of water, under the pressure called for by the contract with the City, four hours each day during the sprinkling season; such hours to be determined by the Ann Arbor Water Company, but no such hours shall be fixed earlier than six o'clock a. m., or later than eight o'clock p. m. No sprinkling shall be done during a fire alarm.

Section 4. Building Rates.

For stone work, per each 16½ cu. ft	2c
For brick work, per M.....	5c

For plastering, per 100 yards.....	15c
For grouting, 100 cu. ft.	20c
For cement walk, 6 in. deep, 100 sq. ft.	15c
For cement cellar bottom, 4 in. deep, 100 sq. ft.	15c

Rates for service not named in this Ordinance are subject to agreement, but without discrimination for similar service rendered between the Ann Arbor Water Company and the applicant for such service.

Section 5. The Water Company may collect all schedule rates quarterly in advance on the first day of January, April, July and October, and may turn off the water from any premises for non-payment of rates herein specified. For water measured by meter, the Water Company may collect monthly.

Section 6. Water consumers vacating premises must notify the Water Company at its office, that water may be turned off, and may be held responsible for water rates until such notice. When there is a change of residence the water consumer may have the overpayment refunded. For turning on or turning off water from any premises, the Water Company may charge a fee of 25c, but no person shall turn the water on any premises until application for service is filed at the office of the Water Company, and opportunity is given the Company to inspect the fixtures upon the premises.

Section 7. It shall be unlawful for any person or persons to use or permit use of water for other purposes than those for which water rates are paid.

Section 8. The inspector or other authorized agent of the Water Company, or an officer designated by the Mayor of the City for that purpose, shall have access, at all reasonable hours, to premises upon which water furnished by the Company is used, for the inspection of all pipes, meters, fixtures, and connections for furnishing water to such premises.

Section 9. No person or persons other than the Chief of the Fire Department, or persons specially authorized by the Chief of the Fire Department, or the

Water Company, shall open any of the fire hydrants, or in any manner injure or molest any of the said hydrants.

Section 10. The Ann Arbor Water Company may make rules for the regulation of its service not inconsistent with the provisions of this Ordinance, or other regulations made by the Common Council; provided, that no such rule shall be made or enforced by the Company, except in case of extended conflagration, restricting the free use of water for domestic purposes, but only to prevent needless and wanton waste.

Section 11. Any person or persons violating the provisions of this Ordinance, and any agent or employee of the Ann Arbor Water Company collecting or receiving greater sums for supplying the inhabitants of the City of Ann Arbor with water for domestic use than the sums herein specified, or unjustly discriminating between the same in the charges made or services rendered, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined in a sum not exceeding twenty-five dollars and the costs of prosecution of each offense. In imposing such fine, the court shall have power and authority to commit the offender to the county jail until the fine is paid, or for a period not exceeding thirty days.

Section 12. The Ordinance entitled: "An Ordinance to Determine, Define and Fix the Rates to be Charged the Inhabitants of the City of Ann Arbor by the Ann Arbor Water Company, for Domestic Purposes, and to Repeal an Ordinance Entitled 'An Ordinance to Determine, Define and Fix the Rates to be Charged the Inhabitants of the City of Ann Arbor for Water for Domestic and Other Uses, by the Ann Arbor Water Company, Passed December 16, 1901 and Approved December 20, 1901,'"—Passed March 10, 1902 and Approved March 11, 1902,—is hereby repealed.

Section 13. This Ordinance shall take effect on and after April 1, 1906.

EXHIBIT NO. 12.

Final Report Special Water Works Committee, Feb. 5, 1906.

An Ordinance to Provide a Tribunal for Hearing, Investigating, Reporting and Advising Upon, Complaints Relative to the Water Service and Supply to the City and its Inhabitants.

Whereas the Common Council may prescribe such just and reasonable terms, restrictions and limitations in reference to charging and collecting compensation for the supply of water to the City and its inhabitants, as it may deem proper, and protect the same from the imposition of undue or excessive charges; and

Whereas, in order that the Common Council may act intelligently in the matter, and with fairness to all, it is desirable to create a tribunal to hear all complaints relating to the service and supply of water to the City and its inhabitants, therefore,

The Common Council of the City of Ann Arbor Ordain:

That there is hereby created a Board of Complaint to be composed of three freeholding electors of the City, to be appointed by the Mayor on the first Monday in May of each year; and to hold their offices from the second Monday in May and until their successors are appointed and qualified. Such Board shall have power to hear, investigate, report upon and advise the Council upon every complaint relative to the water supply and service to the City and its inhabitants, whether made by individuals or by the Ann Arbor Water Company, and whether by or against said Company. Such complaint shall be made in writing, and after reasonable notice shall be given to the party against whom the complaint is made, specifying the cause of the complaint and the time when the matter complained of occurred, a public hearing shall be had if desired by either party. The said Board may require affidavits or other evidence, and are authorized to make investigations in such way as they deem best, subject to an opportunity to be heard by the party charged with the failure or non-performance of duty or other improper conduct. Such Board may hold meetings at such times as they may find neces-

sary, in such places as may be assigned to them by the City Clerk. They shall report in writing at least once a month to the Common Council, setting forth the number and nature of complaints made before them, their conclusions in the matter, with their reasons therefor, and such recommendations for action by the Council as they may deem proper. One of their number to be selected by themselves shall act as chairman, and another likewise chosen shall act as their secretary, and a majority shall constitute a quorum to do business. The secretary shall keep a record of their proceedings, to be signed by the chairman, and these records shall be deposited in the office of the City Clerk, to be kept on file therein, and shall be public records of the City.

This ordinance shall take effect and be in force from and after its legal publication.

EXHIBIT NO. 13.

Final Report Special Water Works Committee, Feb. 5, 1906.

An Ordinance to Require Certain Reports to be Made by the Ann Arbor Water Company to the Common Council.

Whereas the Ann Arbor Water Company has contracted and agreed to furnish the City and its inhabitants with water for domestic and other purposes, at reasonable rates, and

Whereas the Common Council of the City of Ann Arbor is authorized to prescribe such just and reasonable terms, restrictions and limitations upon the Ann Arbor Water Company, in reference to charges and compensation for the supply of water to the City and its inhabitants, as it may deem proper, and to protect the same from the imposition of undue or excessive rates or charges, and

Whereas certain information is necessary for the proper adjustment of rates and charges, which the City cannot otherwise obtain, therefore

The Common Council of the City of Ann Arbor Ordain:

It is hereby made the duty of the Ann Arbor Water Company, and the

said Company is hereby required, on or before the first day of February in each year, to make and file with the City Clerk, under the oath of the President, Secretary, Treasurer, or Manager of such Company, an annual report in writing, stating the following items for the preceding year ending Dec. 31st, that is to say:

1. The total amount of money actually and in good faith invested in all property used in procuring, collecting, purifying and distributing water to the City and its inhabitants, on and up to the preceding Dec. 31st.

2. The actual amount of the foregoing sum invested, derived from the sale of bonds, from payments upon stock issued by the Company, and from earnings derived from the operation of the Company.

3. The total gross income from all sources for the year, specifying the amount received from the City, from the University of Michigan, from commercial purposes, and from domestic services.

4. The total operating expenses for the year, including and specifying the amount paid for salaries, for fuel, for repairs, for taxes, for insurance, and other operating expenses.

5. The sums paid for renewals, extensions, interest and dividends.

6. The number of, and the amount received from, each of the following:

Barber shops, with one chair; additional chairs. Bakeries, using 1 bbl. of flour daily; each additional barrels used. Banks. Beer tubs. Bath tubs, private family; additional tubs. Bath tubs, public; additional tubs. Billiard rooms, one table; additional tables. Breweries. Butcher shops. Blacksmiths, one fire; additional fires. Builders' rates, perch of stone; 1,000 brick; plastering, 1, 2, and 3 coats, cubic feet of grouting; square feet of cement walk, 4", 6"; cement cellar and basement floors; cubic

feet of concrete; backfilling trenches. Fountains. Revolving lawn sprinklers. Gas works. Green houses. Hotels. Offices and private rooms. Printing offices. Churches. Dwellings, 4-rooms; additional rooms, including those living over stores. Boarding houses. Fraternities. Private stables. Livery stables, horses up to ten; additional horses. Cows. Laundries. Saloons. Restaurants. Soda fountains. Stores of all kinds. Hydrants for stores. Yard and lawn hydrants. Steam boilers, horse power, and days. Water closets, private family; additional closets. Water closets, saloons and boarding houses; Water closets, hotels. Urinals, private; saloons and boarding houses. Manufacturing establishments. Work shops, 5 persons or less; over 5 persons. Tap fees. Quantity of water at the various or special meter rates, including that furnished to the University of Michigan. Other services for which charges are made.

7. The total number of gallons of water pumped, by months, for the year.

This ordinance shall go into effect and be in operation from and after its legal publication.

By Ald. Ficsher—

Resolved, that the report of special water committee be received, placed on file and printed in the minutes of this meeting, and that 3,000 copies be printed and distributed under the supervision of the city clerk, and that the committee be discharged.

Adopted as follows:

Yeas—Ald. Blair, Schlenker, Kurtz, Kearns, Miller, Markey, St. James, Sherk, Manwaring, Coon, Fischer, Abbott, Pres. Gilmore.—13.

Nays—none.

Moved by Ald. Markey, that when we adjourn we adjourn to meet next Monday night, Feb. 12, 7:30 o'clock; supported and adopted.

UNIVERSITY OF ILLINOIS-URBANA



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